

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A cathode ray tube comprising:  
a faceplate panel having a substantially flat exterior surface and a substantially concave interior surface; and  
a phosphor screen on the interior surface of the faceplate panel, the phosphor screen having a horizontal axis, a vertical axis and a diagonal axis;  
wherein the horizontal axis, the vertical axis, and the diagonal axis go through a central portion of the phosphor screen and a length from a the central portion of the phosphor screen to a point where a vertical side line of the phosphor screen intersects the horizontal axis is less than a length of a shortest distance from the ~~central portion~~ vertical axis of the phosphor screen to a point where the vertical side line intersects the diagonal axis.

2. (Previously Presented) A cathode ray tube of claim 1 satisfying the following conditions:

$$0.5\% \leq (X_{pin}/H_d) \times 100 \leq 1.5\%$$

where  $X_{pin}$  is a gap from a point where the horizontal axis intersects the vertical side line of the phosphor screen to a point where the horizontal axis of the phosphor screen intersects a line vertically connecting a point where the

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

diagonal axis intersects the vertical side line of the phosphor screen to a point on the horizontal axis, and

Hd is the length from the central portion of the phosphor screen to the point where the vertical side line of the phosphor screen intersects the horizontal axis.

3. (Original) A cathode ray tube of claim 3 wherein the concave interior surface has a curvature radius  $R_p$  satisfying the following condition:

$$1.2R \leq R_p \leq 8R$$

where  $R = 1.767 \times$  a diagonal width of an effective screen of the cathode ray tube.

4. (Original) A cathode ray tube of claim 3 wherein the curvature radius  $R_p$  is identical to a diagonal curvature radius of the diagonal axis of the phosphor screen.

5. (Original) A cathode ray tube of claim 1 wherein a light transmissivity at a central portion of the panel is 85% or greater.

6. (Previously Presented) A cathode ray tube of claim 1 wherein a ratio of light transmission at a peripheral portion on a diagonal corner of an effective screen of the cathode ray tube to light transmission at a central portion of the effective screen is 0.85 or greater.

7. (Previously Presented) A cathode ray tube of claim 6 wherein a light transmissivity at the central portion of the panel is 85% or greater.

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

8. (Original) A cathode ray tube of claim 1 wherein the faceplate panel satisfies the following condition:

$$y_1 - y_2 \leq 0$$

where  $y_1$  is a distance between the exterior surface and a visual image on a central axis of the faceplate panel and  $y_2$  is a distance between the exterior surface and a visual image on a periphery of the faceplate panel.

9. (Currently Amended) A cathode ray tube comprising:

a faceplate panel having a substantially flat exterior surface and a substantially concave interior surface; and

a phosphor screen on the interior surface of the faceplate panel, the phosphor screen having a horizontal axis, a vertical axis and a diagonal axis,

wherein the faceplate panel comprises an effective screen corresponding to the phosphor screen, the effective screen comprising a horizontal axis, a vertical axis and a diagonal axis, wherein the horizontal axis, the vertical axis, and the diagonal axis go through a central portion of the effective screen, and a length from a the central portion of the effective screen to a point where a vertical side line of the effective screen intersects the horizontal axis is less than a length of a shortest distance from the ~~central portion~~ vertical axis of the effective screen to a point where the vertical side line intersects the diagonal axis.

10. (Previously Presented) A cathode ray tube of claim 9 satisfying the following conditions:

$$0.5\% \leq (X'_{pin}/H'd) \times 100 \leq 1.5\%$$

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

where  $X'_{pin}$  is a gap from a point where the horizontal axis intersects the vertical side line of the effective screen to a point where the horizontal axis of the effective screen intersects a line vertically connecting a point where the diagonal axis intersects the vertical side line of the effective screen to a point on the horizontal axis, and

$H_d$  is the length from the central portion of the effective screen to the point where the vertical side line of the effective screen intersects the horizontal axis.

11. (Previously Presented) A cathode ray tube of claim 9 wherein the concave interior surface has a curvature radius  $R_p$  satisfying the following condition:

$$1.2R \leq R_p \leq 8R$$

where  $R = 1.767 \times$  a diagonal width of the effective screen of the cathode ray tube.

12. (Original) A cathode ray tube of claim 11 wherein the curvature radius  $R_p$  is identical to a diagonal curvature radius of the diagonal axis of the phosphor screen.

13. (Original) A cathode ray tube of claim 9 wherein a light transmissivity at a central portion of the panel is 85% or greater.

14. (Previously Presented) A cathode ray tube of claim 9 wherein a ratio of light transmission at a peripheral portion on a diagonal end of the phosphor screen to light transmission at a central portion of the effective screen is 0.85 or greater.

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

15. (Previously Presented) A cathode ray tube of claim 14 wherein a light transmissivity at the central portion of the panel is 85% or greater.

16. (Original) A cathode ray tube of claim 9 wherein the faceplate panel satisfies the following condition:

$$y_1 - y_2 \leq 0$$

where  $y_1$  is a distance between the exterior surface and a visual image on a central axis of the faceplate panel and  $y_2$  is a distance between the exterior surface and a visual image on a periphery of the faceplate panel.

17. (Previously Presented) A cathode ray tube of claim 9 wherein a diagonal end of the effective screen of the cathode ray tube satisfies the following condition:

$$B \leq t_1 \leq A$$

where B is a peripheral thickness of the faceplate panel on the diagonal end of the effective screen when a curvature radius  $R_p$  of the concave interior surface is  $8R$ , where  $R = 1.767 \times$  a diagonal width of the effective screen, and A is a peripheral thickness of the faceplate panel on the diagonal end of the effective screen when a ratio of light transmission at a peripheral portion of the faceplate panel on the diagonal end of the effective screen to light transmission at the central portion of the effective screen is 0.85.

18. (Previously Presented) A cathode ray tube of claim 17 wherein the curvature radius  $R_p$  is identical to a diagonal curvature radius of the diagonal axis of the effective screen.

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

19. (Currently Amended) A cathode ray tube comprising:

- a faceplate panel comprising a substantially flat exterior surface and a substantially concave interior surface;
- a phosphor screen on the concave interior surface of the faceplate panel;
- a funnel sealed to the faceplate panel;
- a shadow mask having an effective electron beam-passing area comprising a plurality of apertures;
- an electron gun mounted in a neck portion of the funnel;

and

- a deflection yoke around an outer periphery of the funnel;

wherein the faceplate panel comprises an effective screen corresponding to the phosphor screen, the effective screen comprising a horizontal axis  $H'$ , a vertical axis  $V'$  and a diagonal axis  $D'$ , wherein the horizontal axis, the vertical axis, and the diagonal axis go through a central portion of the effective screen, and a length from a the central portion of the effective screen to a point where a vertical side line of the effective screen intersects the horizontal axis  $H'$  is less than a length of a shortest distance from the ~~central portion~~ vertical axis of the effective screen to a point where the vertical side line intersects the diagonal axis  $D'$ ; and

wherein the effective beam-passing area of the shadow mask comprises a horizontal axis  $H_s$ , a vertical axis  $V_s$  and a diagonal axis  $D_s$ , wherein a length  $H_{sd}$  from a central portion of the effective beam-passing area to a point where a vertical side line of the effective beam-passing area intersects the horizontal axis  $H_s$  is less than a length from the central

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

portion of the effective beam-passing area to a point where the vertical side line of the effective beam-passing area intersects the diagonal axis  $D_s$ .

20. (Original) A cathode ray tube of claim 19 wherein the concave interior surface has a curvature radius  $R_p$  satisfying the following condition:

$$1.2R \leq R_p \leq 8R$$

where  $R = 1.767 \times$  a diagonal width of the effective screen.

21. (Original) A cathode ray tube of claim 20 wherein the curvature radius  $R_p$  is identical to a diagonal curvature radius of the diagonal axis of the effective screen.

22. (Original) A cathode ray tube of claim 19 wherein the shadow mask is curved in at least one direction.

23. (Original) A cathode ray tube of claim 22 wherein the shadow mask has a curvature radius  $R_s$  satisfying the following condition:

$$1.2R \leq R_s \leq 4R$$

where  $R = 1.767 \times$  a diagonal width of the effective screen.

24. (Original) A cathode ray tube of claim 23 wherein the curvature radius  $R_s$  is identical to a diagonal curvature radius of the diagonal axis of the effective screen.

25. (Previously Presented) A cathode ray tube of claim 19 wherein a light transmissivity at the central portion of the panel is 85% or greater.

Appln No. 09/982,984

Amdt date November 21, 2003

Reply to Office action of August 21, 2003

26. (Previously Presented) A cathode ray tube of claim 19 wherein a ratio of light transmission at a peripheral portion on a diagonal end of the effective screen to light transmission at a central portion of the effective is 0.85 or greater.

27. (Original) A cathode ray tube of claim 26 wherein a light transmissivity at a central portion of the panel is 85% or greater.

28. (Previously Presented) A cathode ray tube of claim 19 wherein the faceplate panel satisfies the following condition:

$$y_1 - y_2 \leq 0$$

where  $y_1$  is a distance between the exterior surface and a visual image on a central axis of the faceplate panel and  $y_2$  is a distance between the exterior surface and a visual image on a periphery of the faceplate panel.

29. (Original) A cathode ray tube of claim 22 wherein a curvature radius of the shadow mask is identical to or less than a curvature radius of the concave interior surface of the faceplate panel.

30. (Original) A cathode ray tube of claim 22 wherein a horizontal curvature radius of the shadow mask is identical to or less than a vertical curvature radius of the shadow mask.